

We claim:

1. An interface circuit adapted to be connected between an adjunct port circuit of a BCS (business communication system) telephone and conductors of an extension station, said adjunct port circuit extends voice and control conductors of said BCS telephone to said interface circuit;

said interface circuit comprising:

a detector for receiving a ringing control signal from said adjunct port circuit simultaneously with the initiation of ringing for a call received by said BCS telephone; and

a ring generator responsive to the receipt of said ringing control signal by said detector for applying ringing current to said extension station simultaneously with the initiation of ringing at said BCS telephone.

2. The interface circuit of claim 1 further comprising:

sensing apparatus for detecting an off hook signal representing the answering of said call at said extension station ; and

apparatus including said sensing apparatus responsive to said detection of said off hook signal for establishing a voice transmission path within said interface circuit between said adjunct port circuit and said extension station .

3. The interface circuit of claim 2 further comprising:

apparatus controlled by said sensing apparatus and responsive to said detection of said off hook signal to disconnect said detector and said ring generator from segments of said voice transmission path within said interface circuit.

4. The interface circuit of claim 3 further comprising:

apparatus responsive to the detection of said off-hook signal for transmitting a signal to said adjunct port circuit indicating that said call has been answered by said extension station .

5. The interface circuit of claim 3 further comprising:

apparatus including said sensing apparatus for monitoring the off hook state of said extension station for the call duration; and

apparatus including said sensing apparatus for detecting an on hook state of said extension station at the call termination for interrupting said voice transmission path and for reconnecting said detector and said ring generator to segments of said voice transmission path.

5

6. The interface circuit of claim 1 further including:

apparatus responsive to the detection of an off hook condition at said extension station when said BCS telephone is not receiving a call for establishing a voice transmission path through said interface circuit to said adjunct port circuit;

10

said adjunct port circuit is adapted to further extend said voice transmission path to the BCS telephone associated with said adjunct port circuit to enable a user at said extension station to initiate a call through said BCS.

15

7 The interface circuit of claim 5 further including apparatus in said adjunct port circuit for extending a first DC potential to said interface circuit; and

apparatus in said interface circuit responsive to the reception of said first DC potential for extending a second DC potential to said extension station to operate said extension station as an alternative to the application of external power to said extension station.

20

8. An interface circuit adapted to be connected between an adjunct port circuit of a BCS (business communication system) telephone and conductors of an extension station, said adjunct port circuit extends voice and control conductors of said BCS telephone to said interface circuit;

25

said interface circuit comprising:

a tone detector connected to segments of a voice transmission path in said interface circuit, said voice transmission path segment extends a ringing control signal to said tone detector from said adjunct port circuit simultaneously with the initiation of ringing for a call received by said BCS telephone; and

30

a ring generator responsive to the receipt of said ringing control signal by said tone detector for causing ringing current to be applied to said extension station simultaneously with the initiation of ringing at said BCS telephone.

9. The interface circuit of claim 8 further comprising apparatus for detecting an off hook condition of said extension station when the call represented by said ringing control signal is answered by a user at said extension station;

apparatus for applying an acknowledgment signal to said adjunct port circuit to
5 terminate ringing at the BCS telephone associated with said adjunct port circuit.

10. The interface circuit of claim 9 further including:

a sense relay in said interface circuit;

apparatus for operating said sense relay in response to said detection of said off
10 hook condition; and

apparatus responsive to the operation of said sense relay for sending said acknowledgment signal to said adjunct port circuit to terminate the ringing of the BCS telephone associated with said adjunct port circuit.

15 11. The interface circuit of claim 10 further including apparatus controlled by said sense relay and responsive to the operation of said sense relay to disconnect said tone detector and said ringing generator from said segments of the voice transmission path within said interface circuit;

an apparatus further responsive to the operation of said sense relay for
20 establishing a voice transmission path through said interface circuit between said adjunct port circuit and said extension station.

12. The interface circuit of claim 8 further including:

apparatus in said interface circuit operable when said BCS telephone is not
25 receiving a call and responsive to the detection of an off hook condition at said extension station for extending a transmission path through said interface circuit to said adjunct port circuit;

said adjunct port circuit is adapted to further extend said path to the BCS telephone associated with said adjunct port circuit to enable a user at said extension
30 station to initiate a call through said BCS.

13. A method of operating an interface circuit adapted to be connected between an adjunct port circuit of a BCS (business communication system) telephone and

conductors of an extension station , said adjunct port circuit extends voice and control conductors of said BCS telephone to said interface circuit;

said method comprising the steps of:

extending a ringing control signal from said adjunct port circuit to a detector
5 simultaneously with the initiation of ringing for a call received by said BCS telephone;
and

operating a ring generator responsive to the receipt of said ringing control signal
by said detector for causing ringing current to be applied to said extension station
simultaneously with the initiation of ringing at said BCS telephone.

10

14. The method of claim 13 further comprising the steps of:

detecting an off hook signal representing the answering of said call by said
extension station; and

establishing a voice transmission path in said interface circuit between said
15 adjunct port circuit and said extension station responsive to said detection of said off
hook signal.

15. The method of claim 14 further comprising the step of:

disconnecting said detector and said ring generator from said voice transmission
20 path within said interface circuit responsive to said detection of said off hook signal.

16. The interface circuit of claim 15 further comprising the step of:

transmitting a signal to said adjunct port circuit indicating that said call has been
answered by said extension station responsive to the detection of said off-hook signal.

25

17. The method of claim 15 further comprising the steps of:

monitoring the off hook state of said extension station for the call duration;
detecting the on hook state of said extension station at the call termination for
disconnecting said voice transmission path and for reconnecting said tone detector and
30 said ring generator to segments of said voice transmission path.

18. The method of claim 17 further including the steps of:

establishing a voice transmission path for a new call through said interface circuit to said adjunct port circuit upon the detection of an off hook condition at said extension station;

5 extending voice transmission path to the BCS telephone associated with said adjunct port circuit to enable a user at said extension station to initiate a call through said BCS; and

transmitting tone signals from said extension station to said BCS telephone to establish said new call.

10 19. The method of claim 17 further including the steps of extending the a first DC potential to said interface circuit from said adjunct port circuit; and

operating apparatus in said interface circuit responsive to the reception of said first DC potential for extending a second DC potential to said extension station to provide power to said extension station.

15

20. The method of claim 17 characterized in that said step of operating said ring generator includes the steps of:

operating a first timer in said ring generator for applying ringing to said extension for a first ring interval upon the receipt of said ring control signal;

20 operating a second timer in said ring generator upon the receipt of said ring control signal for causing said first timer to terminate said first ring; and

operating said first and second timers to apply further ring signals to said extension station such that each ring interval is followed by a silent interval.